VIP Senior Design Project Proposal Report

(Individual Report)

Last Revised 8/17/2022

**Instructions (Delete this page prior to submitting the report):**

This form is to be completed by each student using senior-year VIP registration to fulfill their senior design or capstone requirement. It must be completed and submitted to your advisor. Each first semester senior design student must complete this form individually.

This report is to be completed only the first semester, while the project description report will be completed during the second semester.

**DEFINITIONS**:

**Engineering Design:** Engineering design is a process of devising a system, component, or process to meet desired needs and specifications within constraints. It is an iterative, creative, decision-making process in which the basic sciences, mathematics, and engineering sciences are applied to convert resources into solutions. Engineering design involves identifying opportunities, developing requirements, performing analysis and synthesis, generating multiple solutions, evaluating solutions

against requirements, considering risks, and making trade- offs, for the purpose of obtaining a high-quality solution under the given circumstances. For illustrative purposes only, examples of possible constraints include accessibility, aesthetics, codes, constructability, cost, ergonomics, extensibility, functionality, interoperability, legal considerations, maintainability, manufacturability, marketability, policy, regulations, schedule, standards, sustainability, or usability.

**Engineering Judgement:** Engineering judgement is the ability to decide upon the design, operation, applicability, and/or installation of a product based on the use of appropriate scientific/engineering principles, standards, and practices.

**Complex Engineering Problems:** Complex engineering problems include one or more of the following characteristics: involving wide-ranging or conflicting technical issues, having no obvious solution, addressing problems not encompassed by current standards and codes, involving diverse groups of stakeholders, including many component parts or sub-problems, involving multiple disciplines, or having significant consequences in a range of contexts.

**Team:** A team consists of more than one person working toward a common goal and should include individuals of diverse backgrounds, skills, or perspectives.

**Engineering Standards:** Engineering standards are documents that define the characteristics of a product, process, or service to meet technical, economic, environmental, and/or societal challenges. (The IEEE is a good source for finding appropriate standards: standards.ieee.org.

Purdue VIP Senior Design Project Proposal Report

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| **Student Name** |  |
| **Major** |  |
| **Course Number and Title** |  |
| **Semester/Year** |  |
| **Instructor(s)/Advisor(s)** |  |
| **VIP Team** |  |
| **Project Title** |  |
| **Team Composition:** Provide the information below for each member of the **project team**. Include **all** project team members, not just those in your discipline or those enrolled for senior design. Please also include yourself! |
| **Name** | **Major** | **Area of Expertise** | **Expected Grad Date** |
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**Project and Task Description**: Provide a brief (one or two page) technical description of your proposed design project and your specific role and tasks, as outlined below. Your response to each item should immediately follow the prompt.

(a) Provide a general description of your proposed product (any device, system, process, software, etc. resulting from this design experience) to be delivered by this design project.

(b) What is the purpose of this product? For whom is it intended?

(c) Describe any **design constraints, specifications,** and **standards** that you have and/or expect to consider for your project.

(d) Describe how the **engineering design process** will be used to create your product in this project. Include how you have and/or plan to develop and conduct appropriate experiments, to analyze and interpret data, and to use **engineering judgment** to draw conclusions related to the development of your product.

(e) Describe how your project meets the definition of a “**complex engineering problem**” and builds upon your previous coursework. What new knowledge do you anticipate needing for this project?

(f) Describe the specific role and tasks that **you individually** will be completing as part of the design of the project. What **specific deliverables** will **you** produce? Describe your timeline for completing your tasks.